

# Work Order ID 91189

October-03-12 2:31:20 PM

**\*91189\***

Page 1

Item ID: D2646

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Aft Cap

Start Date: 03/10/2012 Start Qty: 100.00

**\*100\***

Cust Item ID:

Required Date: 05/12/2012 Req'd Qty: 100.00

**\*100\***

Customer:

Reference:

Approvals: Process Plan: MLS Date: 12-10-03 Tooling:

Run Start **\*NR1\***

QC: Date: SPC (Y/N):

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D2646	Rev C

100 PURCHASING 0.00

**\*100\***

Purchasing

Memo

0.00

Purchasing

Issue P/O: 18074 1-Spin as per Dwg D2646 2-Material release note required

CL 12/10/04 (100)

110 Receive & Inspect for Damage & Mat'l Certs 0.00

**\*110\***

Packaging

Memo

0.00

Packaging

Ensure Material Release Note is attached

12/10/22 (100)

120 QC6- Inspect dimensions to drawing 0.00

**\*120\***

QC

Memo

0.00

Quality Control

12/10/23

(100)

DSPOS

**\*91189\***

Page 2

**Accept**

**\*N900040100\***

Setup Start \*NS1\*

Stop \*NS2\*

Stop \*NS2\*

**Start Date:** 03/10/2012      **Start Qty:** 100.00

\*100\*

**Cust Item ID:**

**Required Date:** 05/12/2012      **Req'd Qty:** 100.00

**\*100\***

**Customer:**

**Reference:**

**Approvals:**      **Process Plan:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Tooling:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

[illegible]

# Work Order ID 91189

October-03-12 2:31:20 PM

**\*91189\***

Page 3

Item ID: D2646

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Item Name: Aft Cap

Stop **\*NS2\***

Start Date: 03/10/2012 Start Qty: 100.00

**\*100\***

Cust Item ID:

Required Date: 05/12/2012 Req'd Qty: 100.00

**\*100\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

160

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

**\*160\***

Powdercoat

Memo

0.00

Powder Coating

START TIME:

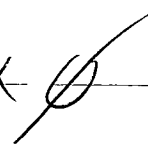
OVEN TEMPERATURE:

FINISH TIME:

8-20

W122878

7:50  
3200F

100x  12/11/13

170

QC3- Inspect Part Finish

0.00

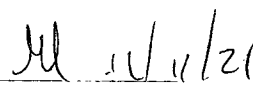
**\*170\***

QC

Memo

0.00

Quality Control

100x d  11/11/12

180

Small Fab

0.00

**\*180\***

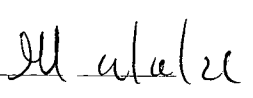
Small Fab

Memo

0.00

Small Fab

c Install inserts as per Dwg D2646

100x p  11/11/12

**Work Order ID 91189**

October-03-12 2:31:20 PM

**\*91189\***

Page 4

Item ID: D2646

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Aft Cap

Start Date: 03/10/2012 Start Qty: 100.00

**\*100\***

Cust Item ID:

Required Date: 05/12/2012 Req'd Qty: 100.00


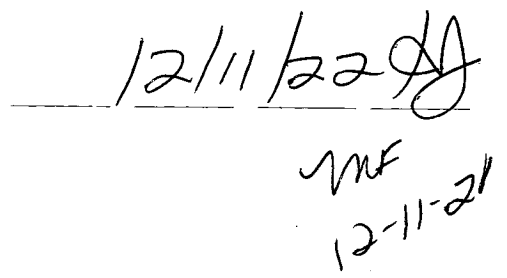
**\*100\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190 <b>*190*</b> QC Quality Control	QC5- Inspect part completeness to step on W/O  Memo	0.00  0.00				100	6	12/11/21	
200 <b>*200*</b> Packaging Packaging	Identify as per dwg & Stock Location: <u>F12-2</u>  Memo	0.00  0.00				x10.0	4	12/11/21	
210 <b>*210*</b> QC Quality Control	QC21- Final Inspection - Work Order Release  Memo	0.00  0.00						12/11/22	

# Picklist Print

October-03-12 2:31:23 PM

Page 1

Work Order ID: 91189

\*91189\*

Parent Item: D2646

\*D2646\*

Parent Item Name: Aft Cap

Start Date: 03/10/2012

Required Date: 05/12/2012

Start Qty: 100.00

Required Qty: 100.00

## Comments:

IPP: G05.08.22Hole size revised in Step 5KJ/JLM

IPP Rev:H Changed Inserts 07-02-19 JLM

IPP rev I changed inserts 07.06.11 EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

ALS7-1032-130

Purchased

No

110

Each

1,004.000

2

200

\*AI S7-1032-130\*

Insert

\*\*

44 11/1/20

### Location

### Loc Qty

### Loc Code

FG

100

121444

100

ST280

51

117717

27

118966

22

119775

2

ST282

853

M122763

x200

119530

73

120181

12

121444

485

122474

283

D2646P

Purchased

No

180

Each

50.0000

1

100

\*D2646P\*

Aft Cap

\*\*

91189

4/2/12/22 (100)

### Location

### Loc Qty

### Loc Code

ST

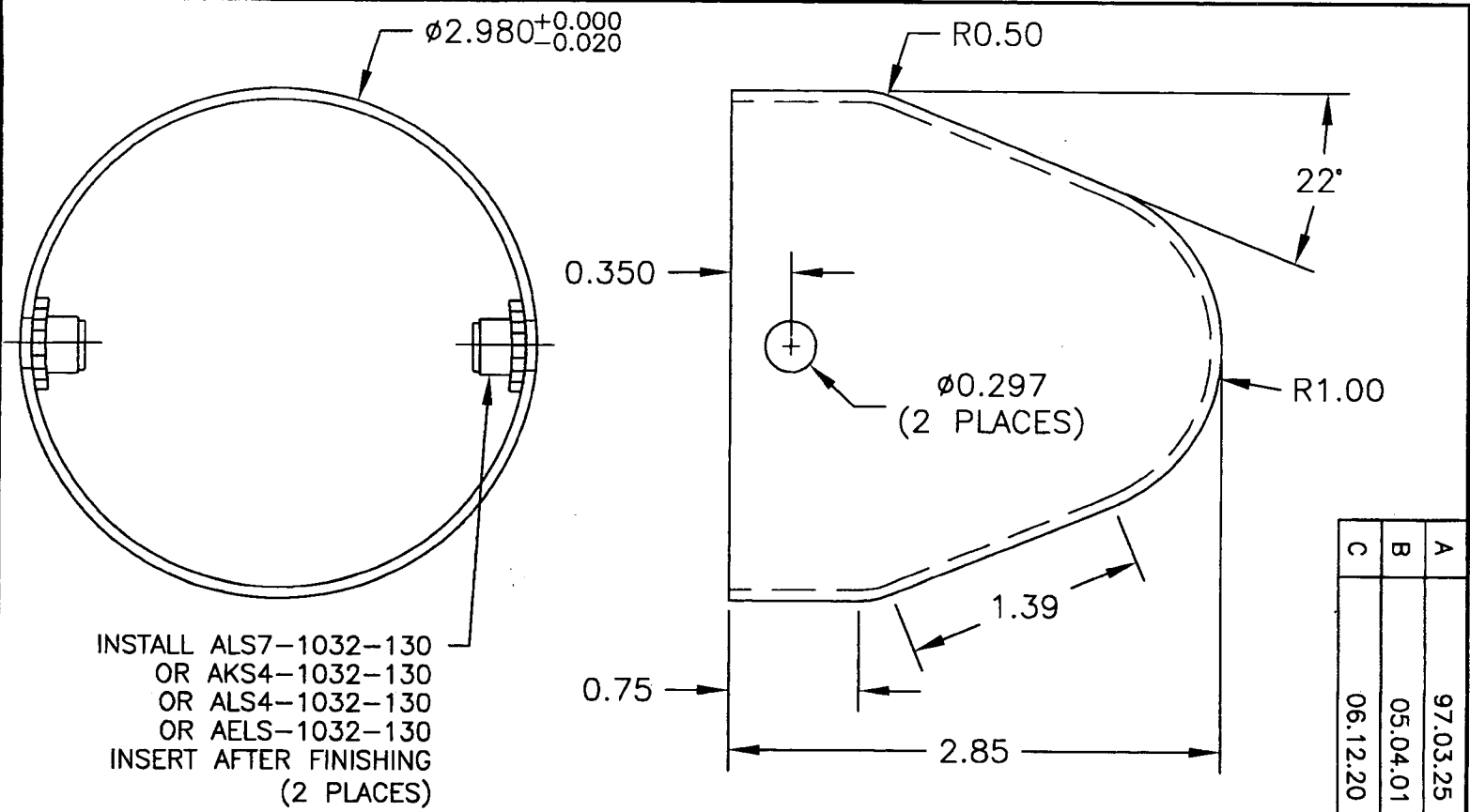
50

90495

50

**DART**

DESIGN	DS	DRAWN BY	PH		DART AEROSPACE USA, INC.	
				PORT HADLOCK, WA		
CHECKED	<del>PH</del>	APPROVED	<del>PH</del>	DRAWING NO.	D2646	REV. C
DATE	06.12.20			TITLE	AFT CAP	SHEET 1 OF 1
						SCALE
						1:1
A		97.03.25	NEW ISSUE			
B		05.04.01	CHANGE TO CLOSED INSERTS			
C		06.12.20	CHANGE TO OPEN ENDED INSERTS			



**D2646 AFT CAP**

- 1) MATERIAL: ALUMINUM 1100-O 0.063 THICK (QQ-A-250/1)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
POWDER COAT ASSEMBLY WHITE (4.3.5.1) PER DART QSI 005 4.3
- 3) ALL DIMENSIONS ARE IN INCHES
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WALLEN & GORDON

NO 91189 MLJ

12-10-03

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Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID PO18074

Purchase Order Date 10/04/12

PO Print Date 10/04/12

Page Number 1 of 1

Order From :

VC-SIE001

SIEG'S MANUFACTURING LTD.  
6236 - 205 STREET  
LANGLEY, BC V2Y 1N7  
CA

Contact Name

Vendor Phone

604 530 7455

Vendor Fax

604 530 7490

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

10127-2607

Tax Resale Nbr

Net 30

Terms

Currency

CAD

FOB

Destination-Collect

Ship To :

DART AEROSPACE LTD

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

**FAXED**  
10/04/12

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	D2646P	Aft Cap	10/26/12 Yes	100.00 Each	FedEx PI collect	\$6.7000	\$670.00

Special Inst: AS PER DWG D2646 REV. C  
B91189

PO Total:

\$670.00

MATERIAL CERTIFICATION  
REQ'D UPON DELIVERY

CERTIFICATE OF CONFORMITY  
REQ'D UPON DELIVERY

Change Nbr: 1

Change Date: 10/04/12

No substitution or deviation without  
consent.

Certificate of Conformity or Material  
Certification required - YES NO



# Sieg's Manufacturing Ltd. Packing Slip

Metal Spinning & Metal Fabricating

6236 205 Street, Langley, BC, Canada V2Y 1N7

Phone:(604)530 7455 Fax:(604)530-7490

Check out our website: [www.siegsmf.com](http://www.siegsmf.com)

Packing Slip No.:

41417

Date:

10/18/2012

Page:

1

<b>Sold to:</b>		<b>Ship to:</b>	
DART AEROSPACE LTD. 1270 ABERDEEN STREET HAWKESBURY, ONTARIO K6A 1K7		DART AEROSPACE LTD. 1270 ABERDEEN STREET HAWKESBURY, ONTARIO K6A 1K7	
<b>Order No.:</b> 18074		<b>Sold By:</b> KAULBARS, ARLA	
<b>Shipped By:</b>		<b>Ship Date:</b> 10/18/2012	
<b>Tracking No.:</b>			

Item No.	Unit	Description	Quantity
D2646P	Each	Aft Cap	100
Comment:			





## Sieg's Manufacturing Ltd.

6236 205 Street Langley, B.C. Canada V2Y 1N7

Ph#: (604)530-7455 fax#: (604)530-7490

arla@siegsfmfg.com

### INSPECTION REPORT

Date: October 18, 2012

Customer: Dart Areospace

Packing Slip: 41417

Part#:	Quantity	Material	Check holes	Insp. By.
2646	100	1100-0 0.064"	N/a	AK

Notes:

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Material Certification Attached: Yes

ThyssenKrupp Materials NA  
Copper and Brass Sales Division  
95A Avenue 19044  
V4N 4P2 Surrey  
Tel.: 6048823493 Fax: 6048820686



Order number	Ord-pos	Del-pos	Part description
Customer PO	PO date	Quantity	Customer Part
MTR header	MTR type	Search criteria	Heat lot
=====			
C8A/1401020197	000010	900001	1100 Aluminum - O Aluminum Sheet 0.06300
1271	08.12.2011	80.000 ST	
Att_001.PDF	NCAP	930124417720110001	28149601A
C8A/1401020197	000010	900002	1100 Aluminum - O Aluminum Sheet 0.06300
1271	08.12.2011	8.000 ST	
Att_002.PDF	NCAP	930124192420110001	112843
C8A/1401020197	000010	900003	1100 Aluminum - O Aluminum Sheet 0.06300
1271	08.12.2011	12.000 ST	
Att_003.PDF	NCAP	930124417720110004	28149601A

Delivery number
2401597801
Date
12.12.2011

*D Jewell*

SIEGS MANUFACTURING LTD.  
6236 205 ST  
LANGLEY V2Y 1N7  
CANADA

ThyssenKrupp Materials NA  
Copper and Brass Sales Division  
95A Avenue 19044  
V4N 4P2 Surrey  
Tel.: 6048823493 Fax: 6048820686



Order number Customer PO MTR header	Ord-pos PO date MTR type	Del-pos Quantity Search criteria	Part description Customer Part Heat lot
C8A/1401020197 1271 Att_001.PDF	000010 08.12.2011 NCAP	900001 80.000 ST 930124417720110001	1100 Aluminum - O Aluminum Sheet 0.06300 28149601A
C8A/1401020197 1271 Att_002.PDF	000010 08.12.2011 NCAP	900002 8.000 ST 930124192420110001	1100 Aluminum - O Aluminum Sheet 0.06300 <i>112843</i>
C8A/1401020197 1271 Att_003.PDF	000010 08.12.2011 NCAP	900003 12.000 ST 930124417720110004	1100 Aluminum - O Aluminum Sheet 0.06300 28149601A

Delivery number 2401597801
Date 12.12.2011

*Jewell*

SIEGS MANUFACTURING LTD.  
6236 205 ST  
LANGLEY V2Y 1N7  
CANADA



ThyssenKrupp

## CERTIFIED CHEMICAL &amp; MECHANICAL ANALYSIS

Sold To: Copper & Brass Sales  
P.O. Box 5116Ship To: Copper & Brass Sales  
404 Centura Court

Southfield MI 48086-5116

Spartanburg SC 29303

Customer PO Number: 5400111624-R01

Part No:

Ken-Mac Order/Item: 462255-1

Item Description : MA .06300 48.000 144.000 1100 0 MFREG MFREG

Heat/Lot: 28149601A Mill Tag No : 427978  
KM Stock No: 167291 Case Tickets: 752416, 752417, 752418

----- Chemical Composition -----  
(Si) (Cu) (Fe) (Zn) (Al)  
.1100 .1300 .6000 .0100 99.15

----- Mechanical Composition -----  
Tensile PSI: 13,500 Yield PSI: 5,900 Elongation: 30.0 Hardness as Shipped:

Heat/Lot: 28149601A Mill Tag No : 427979  
KM Stock No: 167292 Case Tickets: 752418, 752419, 752420

----- Chemical Composition -----  
(Si) (Cu) (Fe) (Zn) (Al)  
.1100 .1300 .6000 .0100 99.15

----- Mechanical Composition -----  
Tensile PSI: 13,500 Yield PSI: 5,900 Elongation: 30.0 Hardness as Shipped:

Total Pounds: 16,498

A Page 1

Bob Harley - Corporate Quality Manager

L-A-B  
ACCREDITED  
#L2068-1

ALERIS ROLLED PRODUCTS, LLC  
C/O ALERIS ROLLED PRODUCTS, INC.  
P O BOX 480  
LEWISPORT, KENTUCKY 42351

# ALUMINUM CERTIFICATION SHEET

THIS IS TO ADVISE THAT THE MATERIAL PRODUCED FOR YOUR ORDER  
CONFORMS TO THE SPECIFICATIONS OUTLINED BY THE ALUMINUM ASSOCIATION.  
MATERIAL WAS MELTED, ROLLED, AND PROCESSED IN THE USA.  
THE TEST RESULTS RELATE ONLY TO THE SKID IDENTIFIED BELOW:

SKID : 427979  
ORDER: 00337316-000001  
LOT : 281496  
SUBLOT : 28149601A  
DESCRIPTION: ALLOY 1100  
TEMPER O  
SIZE .0630 X 48.0000  
CUSTOMER: THYSSENKRUPP MATERIALS, NA  
17901 ENGLEWOOD DRIVE  
CLEVELAND OH44130  
PO # : 124138  
PART # :

SPECS: ASTMB209

DATE TESTED: 09/13/2011

## CHEMICAL COMPOSITION - ASTM E1251

SI	FE	CU	MN	MG	CR	ZN	TI	GA	V	AL
.11	.60	.13	.00	.00	.00	.01	.00	.00	.00	99.13

DATE TESTED: 10/02/2011

## MECHANICAL PROPERTIES - ASTM B557

	RESULTS	T42 RESULTS	T62 RESULTS
ULTIMATE TENSILE STRENGTH MIN (KSI)	13.5		
ULTIMATE TENSILE STRENGTH MAX	13.6		
ULTIMATE TENSILE STRENGTH AVG	13.6		
YIELD STRENGTH MIN (KSI)	5.9		
YIELD STRENGTH MAX	6.4		
YIELD STRENGTH AVG	6.2		
ELONGATION MIN %	30		
ELONGATION MAX %	30		
ELONGATION AVG %	30		

ET SKID WEIGHT: 8,441

HEMICALS CERTIFIED: /S/ SUSAN MUDD, QUALITY SYSTEMS SUPERINTENDENT  
MECHANICALS CERTIFIED: /S/ SUSAN MUDD, QUALITY SYSTEMS SUPERINTENDENT

L-A-B  
ACCREDITED  
#L2068-1

ALERIS ROLLED PRODUCTS LLC  
C/O ALERIS ROLLED PRODUCTS, INC.  
P O BOX 480  
LEWISPORT, KENTUCKY 42351

# ALUMINUM CERTIFICATION SHEET

THIS IS TO ADVISE THAT THE MATERIAL PRODUCED FOR YOUR ORDER  
CONFORMS TO THE SPECIFICATIONS OUTLINED BY THE ALUMINUM ASSOCIATION.  
MATERIAL WAS MELTED, ROLLED, AND PROCESSED IN THE USA.  
THE TEST RESULTS RELATE ONLY TO THE SKID IDENTIFIED BELOW:

SKID : 427978

ORDER: 00337316-000001

LOT : 281496

SUBLOT : 28149601A

CUSTOMER: THYSSENKRUPP MATERIALS, NA  
17901 ENGLEWOOD DRIVE

CLEVELAND

OH44130

PO # : 124138

PART # :

DESCRIPTION: ALLOY 1100  
TEMPER O  
SIZE .0630 X 48.0000

SPECS: ASTM B209

DATE TESTED: 09/13/2011

## CHEMICAL COMPOSITION - ASTM E1251

SI	FE	CU	MN	MG	CR	ZN	TI	GA	7	AL
.11	.60	.13	.00	.00	.00	.01	.00	.00	.00	99.13

DATE TESTED: 10/02/2011

## MECHANICAL PROPERTIES - ASTM B557

	RESULTS	T42 RESULTS	T62 RESULTS
ULTIMATE TENSILE STRENGTH MIN (KSI)	13.5		
ULTIMATE TENSILE STRENGTH MAX	13.6		
ULTIMATE TENSILE STRENGTH AVG	13.6		
YIELD STRENGTH MIN (KSI)	5.9		
YIELD STRENGTH MAX	6.4		
YIELD STRENGTH AVG	6.2		
ELONGATION MIN %	30		
ELONGATION MAX %	30		
ELONGATION AVG %	30		

NET SKID WEIGHT: 8,422

CERTIFIED: /S/ SUSAN MUDD, QUALITY SYSTEMS SUPERINTENDENT  
MECHANICALS CERTIFIED: /S/ SUSAN MUDD, QUALITY SYSTEMS SUPERINTENDENT



Skana Aluminum Co  
Rolling Mill - Certified Metal

Certification of Properties and Analysis

Physical test: 112843 Aluminum Alloy: 1100 Temper: -O- Thickness: .0630

Tested For: Copper and Brass Sales

6156 PO No: 5400107660-R01

Chemical	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others	Al
Min Range	..		0.05	..	..	..	..	..	..		
Max Range	.95 Si	+ Fe	0.20	0.05	..	..	..	0.1	..	0.05	

Coil Ref. No.	1	2	3								
Tensile Strength KSI	13.03	13.12	12.81								
Yield Strength KSI	6.37	6.28	5.17								
% Elong. in 2 in.	31.70	31.70	31.60								
Coil Ref. No.											
Tensile Strength KSI											
Yield Strength KSI											
% Elong. in 2 in.											
Coil Ref. No.											
Tensile Strength KSI											
Yield Strength KSI											
% Elong. in 2 in.											
Coil Ref. No.											
Tensile Strength KSI											
Yield Strength KSI											
% Elong. in 2 in.											

Remarks

Tested By: NH

Certified Date: 22 Sep 2011

NH .063 X 48.000 MF 3/3

ITEM# ALFLR01226

MEETS/EXCEEDS ASTM B209-10 SPECS

Thursday, September 22, 2011

MADE IN THE U.S.A.

QF 824-1-1

Page 1 of 1

# Skana Aluminum Company

## Rolling Mill - Certified Metal

### Certification of Properties and Analysis

Physical test: 112843 Aluminum Alloy: 1100 Temper: -O- Thickness: .0830  
 Tested For: Copper and Brass Sales 6156 PO No: 6400107660-

Chemical	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others	Al
Min Range	..		0.05	..	..	..	..	..	..		
Max Range	.95 Si	+ Fe	0.20	0.05	..	..	..	0.1	..	0.05	

1	13.03	5.37	31.70	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others
				.183	.464	.067	..	..	..	..	..	..	..
				Al									

BAL

2	13.12	5.28	31.70	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others
				.185	.049	.099	..	..	..	..	..	..	..
				Al									

Al

BAL

3	12.81	5.17	31.60	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others
				.182	.439	.092	..	..	..	..	..	..	..
				Al									

Al

BAL

Remarks

NH .083 X 48,000 MF 3/3  
 ITEM# ALFLR01226  
 MEETS/EXCEEDS ASTM B209-10 SPECS

Tested By: NH

Certified Date: 22 Sep 2011

Thursday, September 22, 2011

MADE IN THE U.S.A.

QF 824-1-2

Page 1 of 2





#### CERTIFIED CHEMICAL & MECHANICAL ANALYSIS

Sold To: Copper & Brass Sales  
P.O. Box 5116

Ship To: Copper & Brass Sales  
404 Centura Court

Southfield MI 48086-5116

Spartanburg SC 29303

Customer PO Number: 5400111624-R01

Part No:

Ken-Mac Order/Item: 462255-1

Item Description : MA .06300 48.000 144.000 1100 0 MFREG MFREG

Heat/Lot: 28149601A Mill Tag No : 427978  
KM Stock No: 167291 Case Tickets: 752416, 752417, 752418

----- Chemical Composition -----  
(Si) (Cu) (Fe) (Zn) (Al)  
.1100 .1300 .6000 .0100 99.15

----- Mechanical Composition -----  
Tensile PSI: 13,500 Yield PSI: 5,900 Elongation: 30.0 Hardness as Shipped:

Heat/Lot: 28149601A Mill Tag No : 427979  
KM Stock No: 167292 Case Tickets: 752418, 752419, 752420

----- Chemical Composition -----  
(Si) (Cu) (Fe) (Zn) (Al)  
.1100 .1300 .6000 .0100 99.15

----- Mechanical Composition -----  
Tensile PSI: 13,500 Yield PSI: 5,900 Elongation: 30.0 Hardness as Shipped:

Net Weight: 16,498

Bob Harley - Corporate Quality Manager

L-A-B  
ACCREDITED  
#L2068-1

ALERIS ROLLED PRODUCTS, LLC  
C/O ALERIS ROLLED PRODUCTS, INC.  
P O BOX 480  
LEWISPORT, KENTUCKY 42351

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LOT : 281496  
SUBLOT : 28149601A  
DESCRIPTION: ALLOY 1100  
TEMPER O  
SIZE .0630 X 48.0000  
CUSTOMER: THYSSENKRUPP MATERIALS, NA  
17901 ENGLEWOOD DRIVE  
CLEVELAND OH44130  
PO # : 124138  
PART # :

SPECS: ASTM B209

DATE TESTED: 09/13/2011

## CHEMICAL COMPOSITION - ASTM E1251

SI	FE	CU	MN	MG	CR	ZN	TI	GA	V	AL
.11	.60	.13	.00	.00	.00	.01	.00	.00	.00	99.16

DATE TESTED: 10/02/2011

## MECHANICAL PROPERTIES - ASTM B557

	RESULTS	T42 RESULTS	T52 RESULTS
ULTIMATE TENSILE STRENGTH MIN (KSI)	13.5		
ULTIMATE TENSILE STRENGTH MAX	13.6		
ULTIMATE TENSILE STRENGTH AVG	13.6		
YIELD STRENGTH MIN (KSI)	5.9		
YIELD STRENGTH MAX	6.4		
YIELD STRENGTH AVG	6.2		
ELONGATION MIN %	30		
ELONGATION MAX %	30		
ELONGATION AVG %	30		

ET SKID WEIGHT: 8,422

HEMICALS CERTIFIED: /S/ SUSAN MUDD, QUALITY SYSTEMS SUPERINTENDENT  
MECHANICALS CERTIFIED: /S/ SUSAN MUDD, QUALITY SYSTEMS SUPERINTENDENT

L-A-B  
ACCREDITED  
#L2058-1

ALERIS ROLLED PRODUCTS, LLC  
C/O ALERIS ROLLED PRODUCTS, INC.  
P O BOX 480  
LEWISPORT, KENTUCKY 42351

# ALUMINUM CERTIFICATION SHEET

THIS IS TO ADVISE THAT THE MATERIAL PRODUCED FOR YOUR ORDER  
CONFORMS TO THE SPECIFICATIONS OUTLINED BY THE ALUMINUM ASSOCIATION.  
MATERIAL WAS MELTED, ROLLED, AND PROCESSED IN THE USA.  
THE TEST RESULTS RELATE ONLY TO THE SKID IDENTIFIED BELOW:

SKID : 427979  
ORDER: 00337316-000001  
LOT : 281496  
SUBLOT : 28149601A  
DESCRIPTION: ALLOY 1100  
TEMPER Q  
SIZE .0630 X 48.0000  
CUSTOMER: THYSSENKRUPP MATERIALS, NA  
17901 ENGLEWOOD DRIVE  
CLEVELAND OH44130  
PO # : 124138  
PART # :

SPECS: ASTM B209

DATE TESTED: 09/13/2011

## CHEMICAL COMPOSITION - ASTM E1251

SI	FE	CU	MN	MG	CR	ZN	TI	GA	V	AL
.11	.60	.13	.00	.00	.00	.01	.00	.00	.00	99.1;

DATE TESTED: 10/02/2011

## MECHANICAL PROPERTIES - ASTM B557

	RESULTS	T42 RESULTS	T62 RESULTS
ULTIMATE TENSILE STRENGTH MIN (KSI)	13.5		
ULTIMATE TENSILE STRENGTH MAX	13.6		
ULTIMATE TENSILE STRENGTH AVG	13.6		
YIELD STRENGTH MIN (KSI)	5.9		
YIELD STRENGTH MAX	6.4		
YIELD STRENGTH AVG	6.2		
ELONGATION MIN %	30		
ELONGATION MAX %	30		
ELONGATION AVG %	30		

NET SKID WEIGHT: 8,441

CHEMICALS CERTIFIED: /S/ SUSAN MUDD, QUALITY SYSTEMS SUPERINTENDENT  
MECHANICALS CERTIFIED: /S/ SUSAN MUDD, QUALITY SYSTEMS SUPERINTENDENT